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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,500	07/13/2006	Tim Jungkamp	12810-00318-US	4602
23416 7590 09/21/2009 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899				
EXAMINER KOSACK, JOSEPH R				
ART UNIT		PAPER NUMBER		
1626				
MAIL DATE		DELIVERY MODE		
09/21/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/586,500

Applicant(s)

JUNGKAMP ET AL.

Examiner

Joseph R. Kosack

Art Unit

1626

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 11-27 are pending in the instant application.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 30, 2009 has been entered.

Previous Claim Rejections - 35 USC § 103

Claims 11-26 were previously rejected under 35 U.S.C. 103(a) as being unpatentable over Walter (USPN 3,773,809).

The Applicant has traversed the rejection on the grounds that claim 27 is drawn to a zero valent nickel bidentate phosphorus complex and that the prior art does not teach the process of claim 11.

The arguments are not persuasive for the following reasons. Even though claim 27 is now drawn to a bidentate ligand complex, that complex is known in the art and will be detailed in a new rejection below. Additionally, the Applicant has not pointed out how the prior art and the ordinary skill in the art does not render the process of claim 11 obvious. Therefore, the Examiner is left with no choice but to maintain the *prima facie* case and maintain the rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walter (USPN 3,773,809).

The claims are drawn to an eight step continuous procedure for preparing adiponitrile and methylglutaronitrile. Dependent claims 12-16 provide that the reaction

is a homogeneous hydrocyanation of butadiene, that the extractant is anhydrous, that at least part of stream 9 and/or stream 11 is recycled into step (c), that step (g) be a two step distillation, and that stream 9 contains less than 10% by weight of pentenenitriles.

Walter teaches a process for reacting pentenenitriles with hydrogen cyanide with a nickel(0)-phosphorus catalyst and a zinc chloride promoter and produces adiponitrile and methylglutaronitrile. See Example 6, columns 8-9. Walter then teaches extraction of the nickel complex from the products and zinc chloride by using cyclohexane. See Example 6, columns 8-9. Finally, Walter teaches the distillation of the extractant to yield a recovered nickel complex. See Example 7, column 9.

Walter does not teach the distillation for steps b, e, f, g, and h. Walter also does not teach specifically the dependent claims as described above.

To those of ordinary skill in the art, distillation is a common method for separating liquids from each other and specific techniques such as simple distillation, fractional distillation, dual stage distillation, and vacuum distillation are commonly employed. Each distillation step not explicitly mentioned by Walter essentially separates a more volatile component from less volatile components with a high degree of specificity for fractional distillation and vacuum distillation. Therefore, the distillation steps cannot be looked at as nov-obvious. As to the dependent claims, it doesn't matter whether the reaction starts from the butadiene or the pentenenitrile stage, the process would run the same as the hydrocyanation of butadiene yields pentenenitriles. The extraction of Walter does not show any water in the list of products, so it can be safely assumed that the extraction is anhydrous. Those of ordinary skill in the art would know that a distilled

product steam could be recycled into the reaction process in order to increase the yield of reaction relative to the amount of starting material used.

Therefore, it would be obvious to the person of ordinary skill in the art to expand upon the process of Walter to create a fully continuous process using common distillation techniques in order to generate the instant invention as there is a design need to create synthetic processes that are automatic provide the particular components in a mostly pure, if not fully pure, form.

Claims 11-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walter (USPN 3,773,809) in view of Tam et al. (USPN 5,723,641).

The claims are drawn to an eight step continuous procedure for preparing adiponitrile and methylglutaronitrile. Dependent claims 12-16 provide that the reaction is a homogeneous hydrocyanation of butadiene, that the extractant is anhydrous, that at least part of stream 9 and/or stream 11 is recycled into step (c), that step (g) be a two step distillation, and that stream 9 contains less than 10% by weight of pentenenitriles.

Walter teaches a process for reacting pentenenitriles with hydrogen cyanide with a nickel(0)-phosphorus catalyst and a zinc chloride promoter and produces adiponitrile and methylglutaronitrile. See Example 6, columns 8-9. Walter then teaches extraction of the nickel complex from the products and zinc chloride by using cyclohexane. See Example 6, columns 8-9. Finally, Walter teaches the distillation of the extractant to yield a recovered nickel complex. See Example 7, column 9.

Walter does not teach a bidentate phosphorus ligand complex or the distillation for steps b, e, f, g, and h. Walter also does not teach specifically the dependent claims as described above.

Tam et al. teaches a zero valent nickel bidentate phosphorus ligand complex for hydrocyanations. See column 2, lines 16-54.

To those of ordinary skill in the art, distillation is a common method for separating liquids from each other and specific techniques such as simple distillation, fractional distillation, dual stage distillation, and vacuum distillation are commonly employed. Each distillation step not explicitly mentioned by Walter essentially separates a more volatile component from less volatile components with a high degree of specificity for fractional distillation and vacuum distillation. Therefore, the distillation steps cannot be looked at as nov-obvious. As to the dependent claims, it doesn't matter whether the reaction starts from the butadiene or the pentenenitrile stage, the process would run the same as the hydrocyanation of butadiene yields pentenenitriles. The extraction of Walter does not show any water in the list of products, so it can be safely assumed that the extraction is anhydrous. Those of ordinary skill in the art would know that a distilled product stream could be recycled into the reaction process in order to increase the yield of reaction relative to the amount of starting material used.

Therefore, it would be obvious to the person of ordinary skill in the art to expand upon the process of Walter to create a fully continuous process using common distillation techniques in order to generate the instant invention as there is a design

need to create synthetic processes that are automatic provide the particular components in a mostly pure, if not fully pure, form.

Conclusion

Claims 11-27 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R. Kosack whose telephone number is (571)272-5575. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph R Kosack/
Examiner, Art Unit 1626